UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

CERTIFIED MAIL
RETURNED RECEIPT REQUESTED

July 8, 2009

Mr. Patrick Smith
Environmental Manager
Severstal Wheeling, Inc.
1134 Market Street
Wheeling, West Virginia 26003-2971

Re: Wheeling Pittsburgh Steel Corporation, Follansbee, WV Facility, WVD004319539
Administrative Order # RCRA-III-080-CA, RFI Report

Dear Mr. Smith:

EPA has completed its review of the Phase I Environmental Site Assessment Report (Four Leased Parcels) and the RCRA Facility Investigation Report for the Wheeling Pittsburgh Steel Corporation (WPSC) facility located in Follansbee, West Virginia., submitted September 30, 2005. EPAs comments on each report are provided below:

Phase I Environmental Site Assessment Report (Four Leased Parcels)

1. Page 15, Murphy Consolidated Leased Parcel: The text recommends that stained soils and residual waste materials on the ground be excavated and disposed offsite, and that soil sampling should be performed where soil is excavated to confirm that the contamination has been removed. WPSC should conduct sampling prior to excavation to identify contaminants (presumably need to do this anyway to characterize for disposal, and this may allow a more limited analyte list for post excavation sampling).

2. Page 15 - Provenzano Trucking Leased Parcel: The text recommends at least one boring be advanced to analyze soil and groundwater conditions for the two USTs. WPSC should determine whether the USTs remain, if they remain they should be located and removed, this should be followed by post excavation sampling at each location.

3. The scope of the proposed additional activities (with changes suggested above) is approved as a next step. WPSC should provide a work plan for these activities.

RCRA Facility Investigation Report

1. WPSC should provide isoconcentration maps for selected constituents for each aquifer, e.g., benzene, naphthalene, arsenic - the maps presenting results, concentration at wells or just a table on the figure, are difficult to use. These can be provided as part of the next phase of work.

2. Page 3-10, Free Product (also discussed at page 9-7, Free Product in Subsurface): The RFI Report indicates that Tar Decanter Sludge (TDS) materials have reportedly been disposed in the BOF Residuals Area and Plant Debris Area, but have not been investigated yet. Characterization of these areas should be proposed for the next phase of work.

3. Section 3: Cross-section B-B' should show extent of free product encountered in the Main Plant area.

4. Section 3: Cross-section C-C' does not show TDI-1-S, and the screened interval and sand pack elevation is not shown on Table 3-2. Even if the screened interval is not known, at least the depth of the well should be known.

5. Section 3: Cross-sections should show extent of dissolved-phase impacts. This can provide as part of the next phase of work.

6. Section 3: There are no wells directly downgradient of boring SBE7, which detected 2700 ug/l of benzene (among other constituents) in a grab groundwater sample. The extent of groundwater contamination from this area should be determined in the next phase of work.

7. Section 3: There are no wells directly downgradient of SBC1, which exceeds SSLs soil to groundwater for VOCs (benzene, toluene, xylene). Wells should be installed in the next phase of work.

8. Section 3: There are no wells directly downgradient of MWC2I and MWC2P, both of which exceed SSLs for soil to groundwater screening for benzene. Wells should be installed in the next phase of work.

9. Section 7.2.3.2, Exposure Dose Estimates, Construction Worker Ingestion Rate, p 7-13: The soil ingestion rate utilized to evaluate construction worker exposure should be 330 mg/day, as described in the 2002 EPA Supplemental Guidance for Developing Soil Screening Levels (SSLs) for Superfund Sites. Note that there is no adjustment of the soil ingestion rate based on a particular soil adherence rate; the soil adherence rate is used only to evaluate dermal exposure.

10. Section 7.2.3.2, Inhalation Exposures, p 7-14: The equivalent chemical concentration in air is determined by multiplying the concentration in soil by 1/VF or 1/PEF.

11. Section 7.2.3.2, Exposure Dose Estimates, Outdoor Air, p 7-15: Many of the values listed on this page do not agree with values listed in the table (not numbered) appearing on the last page of Appendix Q. As a result, different values for VF are returned using each set of inputs. In addition, the value listed for Q/C_{vol} on page 7-15 could not be reproduced by the EPA reviewer using the provided inputs. Clarify, and provide documentation for all inputs that are based on site-specific information.

12. Section 7.2.3.2, Exposure Dose Estimates, Indoor air, p 7-16: Benzene, 1,2-DCA, and toluene are noted as being evaluated for potential indoor air vapor intrusion. The vapor intrusion evaluation should include all potential vapor-forming chemicals such as naphthalene, etc. Note that an inhalation unit risk value for naphthalene, previously unavailable, now appears on the current EPA regional risk screening table. In addition, it appears that the 95% UCL for groundwater contaminants was calculated using data from across the entire site. This will serve to reduce the resulting concentrations, and is not a valid

method for determining the concentration term for groundwater. Risks should be estimated for the center, or most contaminated portion of the plume of groundwater contaminants. It is also noted that the presence of free product in the subsurface will increase potential risks from indoor air exposure.

13. Section 7.2.3.2, Exposure Dose Estimates, Indoor Air p 7-17 and Appendix Q: The soil type utilized in the J & E model and in modeling of soil contaminant concentrations to outdoor air (sandy loam) should be supported, especially in consideration of the large amounts of fill material and slag in place on the WP site as documented in Section 3.4.2.

14. Section 7.2.3.2, Exposure Dose Estimates, Indoor Air, p 7-17: The air exchange rate of 2 hr^{-1} is an ideal rate and exceeds J&E model recommended defaults. Independent supporting documentation that this air exchange rate exists for current on site buildings is not provided. In addition, there is no assurance that future building placed on site will have an air exchange rate approaching this value. Risks for indoor air are therefore likely underestimated.

15. Section 7.2.3.2, Exposure Dose Estimates, Bioaccessibility, p 7-20: Application of a bioaccessibility factor to reduce exposure estimates is not an accepted practice in current EPA risk assessment guidance, nor is any objective evidence presented to document the presence of the same types of slag described in the Proctor report in all Wheeling Pitt soil samples. It is noted that the cited study provided accessibility factors, but did not employ adherence factors when assessing risk from dermal exposures. Use of accessibility factors with adherence factors results in an increased underestimate of risks from dermal contact with soil; worker soil risks calculated in accordance with EPA guidance will be higher, especially for risk drivers such as manganese.

16. Table 7-7, Exposure Parameters: In addition to modification of the construction worker soil ingestion rate as noted above, the following exposure parameters should be modified in accordance with EPA guidance: 1) the construction worker exposure frequency should be 250 days/year for 1 year (Source: *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites*, EPA OSWER no. 9355.4-14, December 2002); 2) the outdoor/indoor exposure time listed for inhalation for resident adults/children is listed as 7 hours, which is not an EPA recommended value for either indoor or outdoor air exposure. Furthermore, the exposure times listed in Table 7-7 do not agree with values used in Appendix Q calculations of outdoor/indoor air risks. In Appendix Q, an exposure time of 22.5 hours is listed for adults for both indoor and outdoor air, while an exposure time of 18 hours is listed for children for both indoor and outdoor air. No supporting reference appears for either Appendix Q value. According to the EPA *Exposure Factors Handbook,* the 90th percentile residence time indoors is 23.25 hours (Table 15-131). This can be rounded to 23 hours, with the remaining 1 hour spent out of doors in a residential setting.

17. Section 8.2.3, Identification of Constituents of Interest and Table 8-6 (Ecological Screening Results Alluvial Aquifer Groundwater) and Appendix W (Table W-1): While Table 8-6 correctly lists surface water quality criteria as the groundwater screening criteria for the Ohio River, Table W-1 in Appendix W incorrectly lists these surface water criteria diluted by an Ohio River dilution factor. This approach, while sensible for the water column, is not conservative enough to screen groundwater chemicals for aquatic sediment accumulation. Table W-1 would have been much more useful if it included the correct undiluted surface water criteria.

18. Section 8.2.4.6, Food Chain: A terrestrial omnivore such as the raccoon should have been included to combine exposures to both contaminated aquatic and terrestrial invertebrates and contaminated plants. This receptor should be included in the BERA.

19. Section 8.2.5.1, Threatened or Endangered Species Considerations: This section states that site groundwater will diffusely enter and rapidly mix in the Ohio River. While this is true for the water column, groundwater typically enters through aquatic sediment, and contaminants can trap in the sediments and/or remain more concentrated in the sediment porewater in which benthic invertebrates reside. This is the exposure point of concern for contaminated groundwater entering surface water bodies. Please refer to the comment for Sections 8.3.2.2 and 8.3.2.3 for further direction.

20. Section 8.2.8, Comparison of Surface Water and Sediment Samples to Background Data and Selection of Constituents of Concern and Figure 3-1, Site Investigation Map Plant Area: Please explain why the Mahan's Run sample locations SWHO6W through SWH10W should be considered unaffected background. This portion of the stream is close to the Former PGT Trucking leased property and Former Murphy Construction leased property, as well as previous USTs. As such, these locations do not seem to meet the definition of "background" unaffected by the site.

21. Section 8.2.8.2 (Sediment), Table 8-9 (Ecological Screening Results Mahan's Run Sediment), Appendix Y (Table Y-1) and Appendix U (Table U-1): Table 8-9 states that benzo(b)fluoranthene background (upstream) concentrations were found to be statistically greater than downstream. Table U-1, showing the statistical comparison, reversed the averages and medians for benzo(b)fluoranthene, showing the downstream mean for the upstream and vice versa, according to Table Y-1, which shows the individual results. According to Table Y-1, the downstream concentrations are significantly greater than the upstream, indicating that benzo(b)fluoranthene should be selected as a COI. Please revise all applicable sections and tables accordingly.

22. Section 8.3.2.1, Facility Soils and Table 8-10, Hazard Index - Surface Soil to Plants:
a) It should be noted that the maximum soil contaminant concentrations should also have been compared to the Efroymson et al., 1997 soil benchmarks for soil invertebrates and heterotrophic processes. Luckily, the Efroymson et al. soil benchmarks for phytotoxicity are predominantly lower than the soil invertebrate benchmarks, so this approach was protective of both.
b) Some of the SVOC maximum concentrations listed in Table 8-10 are incorrect as compared to those listed in Table 8-5 (Ecological Screening Results Surface Soil), such as the maximum for p-cresol (1,100 mg/kg, but is 1.1 mg/kg according to Table 8-5). Please rectify.

23. Section 8.3.2.1, Bioaccumulation of COIs in Soil Invertebrates and Vertebrates and Table 8-17, Hazard Index – Bioaccumulation of COIs in Meadow Vole via Ingestion of Plants:
a) Tables 8-22 and 8-23 appear to be missing, so it is impossible to verify the meadow vole food chain calculations. In addition, the Gao and Zhu citation in Reference Section 10 is incomplete; it does not include the journal information. Please provide the tables and reference.
b) The word "mean" should be removed from the dose terms, such as "mean vole dose," because the values are based on maximums, not means.
c) Footnotes 1 through 4 do not seem to apply to Table 8-17.

d) This section and footnote (6) of Table 8-17 state that Ecological Screening Levels were used to calculate hazard quotients. This is incorrect. Receptor doses in mg/kg/day must be compared to NOAELs and LOAELs in mg/kg/day, applicable to the particular species. Ecological Screening Levels not only do not necessarily represent NOAELs or LOAELs, ESLs in mg/kg are not even in the correct units for comparison to the dose units. NOAELs and LOAELs can be found in *Toxicological Benchmarks for Wildlife: 1996 Revision* (Sample, Opresko, and Suter, 1996; Oak Ridge National Laboratory). Please revise to replace all ESLs with the reliably documented Sample et al., 1996 NOAELs for hazard quotient calculations. The Sample et al., 1996 toxicity value for benzo(a)pyrene may be used as a surrogate for the other mutagenic PAHs.
e) This section states that 13 of the 21 COIs for the meadow vole could not be evaluated due to an absence of data on uptake factors for those chemicals. When uptake factors cannot be found, it is customary to either use a surrogate value based on similar chemical structure, or to use a conservative default value of 1. Please revise accordingly.

24. Tables 8-18 (Hazard Index - Bioaccumulation of COIs in American Robin) and 8-19 (Hazard Index - Bioaccumulation of COIs in Red Tailed Hawk):
a) Some of the SVOC maximums listed in these tables are incorrect as compared to those listed in Table 8-5 (Ecological Screening Results Surface Soil), such as the maximum for p-cresol (1,100 mg/kg, but is 1.1 mg/kg according to Table 8-5). Please rectify.
b) When uptake factors cannot be found, as is the case for many chemicals in these tables, it is customary to either use a surrogate value based on similar chemical structure, or to use a conservative default value of 1. Please revise accordingly.
c) Many of the toxicity values in these tables are not from Sample et al., 1996. As explained in the comment above, please replace all ESLs with the reliably documented Sample et al., 1996 NOAELs for hazard quotient calculations.
d) If the toxicity values for the PAHs in these tables are actual NOAEL values in mg/kg/day, please provide the reference for these values.

25. Section 8.3.2.2, Facility Groundwater: This section states that some groundwater chemicals could not be evaluated due to the absence of NOAELs for those chemicals. This term is incorrect; screening benchmarks derived from phytotoxicity tests in mg/L were used for comparison to groundwater concentrations, not body weight-based doses. Please revise to replace NOAEL with screening benchmark.

26. Sections 8.3.2.2 (Facility Groundwater) and 8.3.2.3 (Surface Water) and Table 8-13 (Hazard Index - Alluvial Groundwater to Aquatic Life in Ohio River):
a) While the dilution factor approach is acceptable for the Ohio River water column, groundwater typically enters through aquatic sediment, and contaminants can trap in the sediments and/or remain more concentrated in the sediment porewater in which benthic invertebrates reside. This is the exposure point of concern for contaminated groundwater entering surface water bodies. Therefore, please add the following to Table 8-13: a comparison of the maximum groundwater concentrations without the dilution factor to water quality criteria as a conservative screen for sediment effects.
b) Please revise Table 8-13 to include either USEPA National Recommended Water Quality Criteria or EPA Region III freshwater benchmarks (www.epa.gov/reg3hwmd/risk/eco/index.htm) for all chemicals lacking WVDEP Water Quality Criteria.

27. Table 8-12, Hazard Index - Groundwater to Plants Hillside Area: This table is missing screening benchmarks for o-cresol, naphthalene and phenol that can be found in the Efroymson et al., 1997 reference. Please revise to include.

28. Section 8.3.2.4, Facility Sediments and Table 8-20, Hazard Index - Aquatic Receptors Exposed to Sediment in Mahan's Run:
a) The ESLs in Table 8-20 are incorrectly labeled as mg/kg/day; these values are actually sediment benchmarks in mg/kg or ug/kg units. Please correct.
b) The ESL units for all SVOCs in Table 8-20 are ug/kg, not mg/kg, resulting in hazard quotients exceeding one. Please correct.

29. Section 8.3.2.4, Facility Sediments and Table 8-21, Hazard Index - Bioaccumulation of COIs in Indiana Bat:
a) Regarding the biota sediment accumulation factors in Table 8-21, please revise to also include factors from the reference *Biota Sediment Accumulation Factors for Invertebrates: Review and Recommendations for the Oak Ridge Reservation* (Bechtel Jacobs Company, 1998, Oak Ridge National Laboratory), which will provide a second set of invertebrate concentrations.
b) For all chemicals without available biota sediment accumulation factors in Table 8-21, please use a default value of 1.
c) The values listed as NOAELs from Sample et al., 1996 in Table 8-21 are not NOAELs. They are screening values for food, and cannot be used to compare to body weight-based doses. Revise to use the NOAELs from this reference.

30. Section 8.3.5, Scientific Management Decision Point: Prior to producing a BERA, please provide EPA with a figure of all surface soil, surface water and sediment sample locations used in the SLERA superimposed on the habitat map. For habitat types adjacent to contaminated areas that have not been sampled, please include on this figure proposed sampling locations, to include the riparian forest and wetland habitats. The BERA will be much more useful if data from actual habitat locations can be used, versus extrapolating from the industrialized areas where the majority of samples were obtained.

31. Conclusions, p. 9-4, fourth bullet: The existence of slag and industrial fill on site and throughout the Ohio River valley should be documented with independent sources. This is important especially due to the presence of manganese, one of the risk-drivers for soil exposure.

32. Conclusions, p. 9-4 and 9-5, Surface Soil and Subsurface Soil: The text does not discuss screening relative to SSLs (soil to groundwater). Soil to groundwater screening is presented on the tables shown on Figures 6-1 and 6-2, and there are many instances where the detected concentrations exceed the screening value. This should be discussed in the text, data gaps identified, and additional work proposed. Figures 6-1 and 6-2 should graphically show the areal extent of soils which exceed soil to groundwater screening.

33. Conclusions, p. 9-5, fourth bullet: As noted in earlier comments, vapor intrusion risks to onsite workers is likely underestimated. In addition, exposure to contaminated soil and/or free product by construction workers can be minimized while these areas are under the control of Wheeling Pitt. No such guarantees can be given for future workers, and additional consideration to the final disposition of these contaminated areas should be included in future work at the facility.

34. Conclusions, p. 9-6, third bullet: Although there is no use of groundwater under current conditions, in accordance with EPA groundwater use policy, restoration of groundwater to maximum beneficial uses must be included as a remedial goal, regardless of actual current uses for groundwater beneath the site. These goals should be considered during the CMS phase.

35. Conclusions, p. 9-6, fourth bullet: As noted in earlier comments, risks to onsite commercial/industrial workers due to vapor intrusion from groundwater are not acceptable. Unacceptable risks from vapor-forming chemicals reported in groundwater were identified for the byproducts area.

36. Conclusions, p 9-7, Free Product in Subsurface: The text states that the extent of coal tar derivative materials in the former Ash Screening Area was well delineated. More delineation is needed in this area. SBE 8, 9 and 10 all encountered coal tar material, but there are no borings north, south, and east of these locations to determine extent. The additional borings SBE 12, 13, 14, and 15 on the western side of this area did not go all the way through the fill, and do not appear to have gone as deep in elevation as where coal tar was encountered in the other borings. This should be addressed in the next phase of work.

37. Recommendations, p. 9-8, third bullet: Additional samples are proposed for the hillside area. A risk assessment should also be performed which evaluates current and future uses of this area, including residential users. Note that background samples are generally used to establish site-specific reference concentrations for metals only.

38. Recommendations, p. 9-8, fifth bullet: The proposed actions will address only current potential exposures to indoor vapors. Potential future risks to workers not employed by Wheeling Pitt are not considered; therefore, long-term measures to mitigate such risks should be considered.

39. Recommendations, p. 9-8, last bullet: With regard to scope of assessment that could be undertaken with respect to impacts on Mahan's Run, these activities (additional groundwater, surface water, and sediment sampling and analysis) should be undertaken.

40. Recommendations, p. 9-09: The text recommends additional perched zone wells downgradient of the Light Oil Refining Area. Alluvial zone wells are also needed downgradient of this area. These wells should be installed in the next phase of work.

41. Recommendations, p. 9-7 through 9-9: The scope of the proposed additional activities (with changes suggested above) seems appropriate as a next step. WPSC should provide a work plan for these activities.

42. Appendix Q, Groundwater to indoor air evaluation: Concentration terms listed for 1,2-dichloroethane and toluene are incorrect. Values should be 7.23 ug/l for 1,2-dichloroethane, and 2470 ug/l for toluene.

43. Appendix Q, J&E model inputs: Model inputs for the sandy loam soil type in Appendix Q documentation do not agree with default J&E values for this soil type. If site specific soil properties are used, they should be supported with independent references.

Should you have any questions concerning EPA comments, please feel free to contact me at 215-814-3433. EPA looks forward to working with Severstal Wheeling Inc. to complete the RFI investigation.

Sincerely,

Estena A. McGhee, Project Manager
Office of Remediation

cc: Joel Hennessy. 3LC10
Betty Anne Quinn, 3LC10
Ruth Prince, 3LC10
Luis Pizarro, 3LC20